LMMSE-BASED RAKE RECEIVER WITH CHANNEL TAP ASSIGNMENT

Abstract

Methods of recovering data in a received signal sent in a communications media are disclosed. Composite channel impulse responses are first estimated. Channel-tap locations are then assigned to suppress the interference noises by sequential search schemes or heuristic search schemes based on estimated composite channel impulse responses. A sequential search scheme optimizes a predetermined design criterion in a sequential manner. Also described are recursive evaluations of the design criterion and the inverses of the noise covariance matrices based on the composite channel impulse response during a sequential search. A heuristic search scheme selects channel-tap locations based on a set of pre-selected channel-tap locations. The set of pre-selected channel-tap locations is determined according to the estimated composite channel impulse response. A method of estimating energy levels of known interference sources is also described.